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Revitalising the Campus

The University of Melbourne
Parkville Campus, VIC



Revitalising the Campus

New buildings within an established campus often appeal to tertiary providers as they look for ways to expand their operations to cater for growing student numbers and engage more deeply with industry.

For universities and developers, understanding how to address site legacy and latent conditions can seem insurmountable and may contribute added time and cost to a project. The right planning from the outset can make a world of difference.

Universities are refurbishing and redeveloping existing campuses continuously, embarking on new partnerships and taking on unused locations to develop new facilities. With the challenges currently faced with COVID and the impact to the international student market, universities will look at their property portfolio to work harder and more efficiently.

Aside from the long term trend of needing more space, influencing factors to undertake new building projects include ageing infrastructure that cannot support today's systems and technologies, or that don't offer the kind of flexibility in function that today's pedagogies demand. Often there is a lack of land on the existing site, or the realisation that renovations and extensions will bring a sub-optimal solution to that site. Universities will often purchase adjacent land as it becomes available.

Considerable opportunity for larger scale development resides in many former industrial sites scattered across Australia's inner urban environments.

But the blue sky opportunity to plan out large scale new communities and precincts can be complicated by a range of issues that need to be addressed before work can start, including extensive contamination of land and groundwater, soil quality, and heritage buildings that may need to be salvaged, refurbished or demolished.

As universities seek to utilise best practice sustainable design and construction methods, management of waste materials including landfill in a sustainable way is also high on the agenda.

Common challenges

The most significant project challenges that Slattery consistently encounters are:

- Contamination and latent site issues
- Heritage issues
- Services strategy
- Staging strategy to minimise disruption
- Existing documentation

What lies beneath?

The historical legacy of a site can be hazardous waste in a variety of forms, each requiring dedicated management and treatment, and not necessarily off-site or as waste.

Each state or jurisdiction will have its own waste-management hierarchy to aid the industry's decision-making about how to manage. There is greater emphasis on on-site treatment and management rather than transporting to new locations, which will have a cost-risk trade-off including triggering a landfill levy or other statutory charge if moved elsewhere.

The end goal is achieving optimal environmental, health and safety outcomes in conjunction with the best economic outcome.



Converting our history

Heritage buildings bring their own unique issues, often requiring the input of a heritage consultant to review options and input to the planning and design teams in order to contemporise the facility and its capabilities. There can be compliance issues to meet standards, services upgrades required and other alterations which may compromise the heritage features.

Services strategy

With many universities offering year-round programs through continuous 13-week terms, two semesters or three trimesters, careful sequencing of works and developing a services strategy to ensure power supply is maintained is vital. Existing services mains running across campuses can be impacted by construction works, interrupting teaching and research by the academic community. New services may be required to sustain university and adjacent precincts and avoid disruption. Services requirements and capacity should be carefully planned to include early works to facilitate new projects such as a new central plant which will enable future development.

Determining Staging

Breaking down the program of works into early works and main works packages can provide the flexibility required for the academic community and the least disruption to the student timetable. The project team need to determine the least pain for long term gain and balance the concerns of all stakeholders.

Existing Documentation

Universities are made up of ageing building stock that have been built through different eras. Unless a detailed study has been completed by the infrastructure team, the existing documentation of a building may be missing altogether or have significant portions missing. Before the commencement of any future planning, it is important to understand where these deficiencies are in documentation as it may impact of decisions determining demolition versus adaptive re-use.

Case Study: New Site

General Motors Holden (GMH) Site Plant 18 Leonardo Tenancy

Slattery is currently providing cost management services to Development Victoria (DV) for this complex redevelopment on the former GMH site at Fishermans Bend, at 480 hectares, Australia's largest urban renewal project. By 2050 Fishermans Bend is planned to be a global benchmark in smart, sustainable development with liveable vibrant neighbourhoods, collocated with education, health, commercial and enterprise options, enabling 80,000 jobs and homes for 80,000 people.

Leonardo, a Defence Contractor, are re-modelling part of Plant 18 on the GMH site to provide a test facility for the Australian Air Force fleet of Taipan Helicopters. The scope of work includes significant groundworks including demolition of existing structure and ground slabs, deep excavation, piling, new ground slabs and site -wide trenching and infrastructure. Due to the previous use of the site, remediation and disposal of both excavated spoil and groundwater is required.

Understanding the ground conditions was vital as the costs can vary greatly. Geo-technical investigations were undertaken to gain cost certainty and to de-risk the project.

Known ground conditions included contaminated fill at varying depths across the site, Coode Island silt and the presence of contaminated ground water.

Our costing approach included allowances for ground conditions based on our knowledge of the former GMH site from past projects in an early concept cost plan prior to geo-technical investigation, in which we quantified all excavated material (making assumptions around pile depth, slab thickness, etc), treatment of all material as Category C contamination, extra over allowances for 'hot spots' of Cat A / B based on prior site use, allowances for de-watering and treatment of contaminated water.



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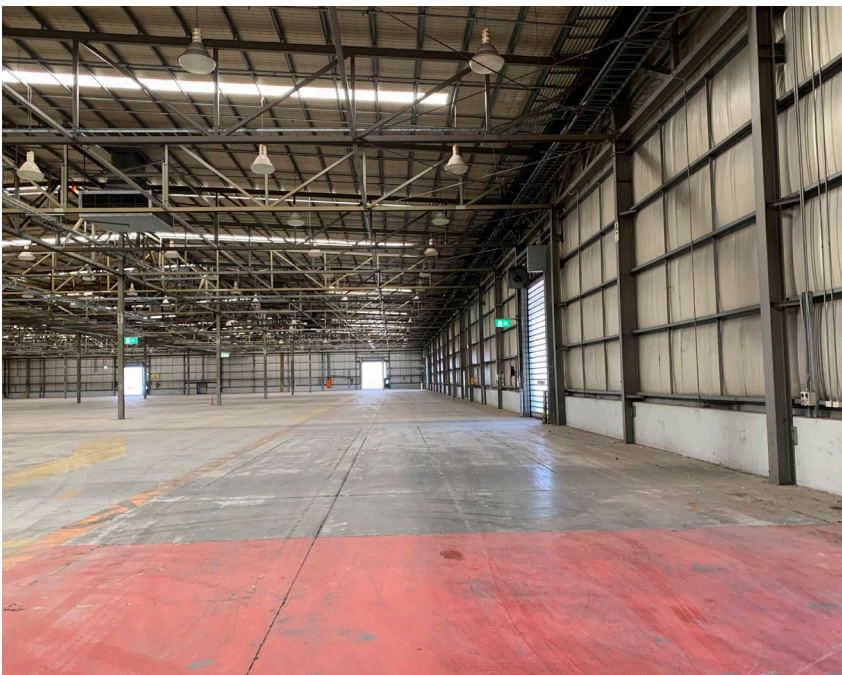


The geo-technical surveys supported our prior knowledge and assumptions, with groundwater found close to the surface, presence of contamination in both spoil and water.

During the tender process we worked closely with DV, negotiating with the tenderers as to the division of risk for groundworks. A balance has been struck whereby the winning tenderer has provided a lump sum price (in competition) to deal with all contaminated material that could be reasonably foreseen from the geo-technical reports. A risk analysis has been conducted on the potential for 'extra over' works and a separate client contingency held outside of the contract sum to manage such risk.

Due to the low bearing capacity of Coode Island silt and presence of ground water at near-surface levels, it is common to utilise Continuous Flight Auger (CFA) piles instead of traditional bored piles. CFA piles continuously pump concrete through the auger of the piling rig as it is removed from the ground. This eliminates the need for costly continuous dewatering and the risk of treating / disposing of contaminated water. This also helps in the elimination of noise and vibration.

Whilst the cost of this is greater than traditionally bored piles, the savings made in de-watering and the risk associated with disposing of contaminated water made this a 'best for project' approach. This approach was taken when developing the project budget and was reflected in the tenders being returned on budget.



Project Team

Client: Development Victoria (DV)
Project Management by DV
Architecture by Architectus
Engineering by WSP



Above: Fishermans Bend, Melbourne

Middle: Inside Plant 18, GMH

Below: Artist impressions, Fishermans Bend Precinct Redevelopment, Slattery provided cost management advice via WSP for the precinct wide infrastructure.

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Case Study: Campus Refurbishment

New Student Precinct, The University of Melbourne

The University of Melbourne is undergoing a remarkable transformation over the next 5-10 years. Slattery's current involvement on the New Student Precinct has taught us the importance of engaging with other projects to understand their programme, decanting requirements and potential impacts on other projects and the need for thorough site investigation.

The project comprises the refurbishment of five existing buildings, and will also provide whole of campus amenity in the form of a new Arts and Culture Building, a new Student Pavilion and extensive public realm landscaping.

The project required considerations for heritage implications, access and safety considerations, suitable staging and the future construction of the Melbourne Metro tunnel and station nearby.

The project will be a state-of-the-art precinct and has been developed using extensive co-creation and engagement with the student community including Indigenous cohorts. Over 12,000 students have been engaged in its design and activation. It will also adopt exemplar sustainable targets in line with the University's sustainability objectives.

Our involvement has been from the start of the Business Case of this major development. Demolition and site remediation were separated out as an 'Early Enabling Works' project which included the creation of a new services tunnel, demolition of buildings and setting up all the infrastructure required for the main works project.

Key lessons learnt to help mitigate cost overruns include:

- Undertaking a project wide risk analysis and workshop to identify, mitigate and manage risk accordingly and to assist in establishing realistic contingency budgets.

- Ensure location of existing services surveyed are fully understood prior to tender to avoid costly relocation costs.
- Establishing procedures relating to the pricing of latent condition prior to construction start including agreement of rates to be applied and documentation to be provided, providing an independent check of contamination quantities, etc.

Project Team

Client: The University of Melbourne
Project Management by DCWC (main works, Codicote (early works)
Architecture by Lyons Architecture, Koning Eizenberg, NMBW, Breathe Architecture, Aspect Studios, Glas.
Engineering by Irwins (structural), Lucid (services)



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Get the budget right

Considering all challenges, how do we go about establishing a realistic budget for brownfield developments which can inform the business case? What are the key steps?

Cost planning should always be ahead of the documentation, leading the consultant team through the complex maze of alternatives and design decisions which must be considered to ensure the best solution is achieved.

Central to compiling a tested and durable cost plan for feasibility study stages, is for the cost planning team to capture a complete and comprehensive understanding of the project specific circumstances. A key tool is a Capital Cost Risk Register which should capture all risks and potential challenges to a project and their potential costs to mitigate the risk. Once the requirements and risks are known, the assessment and quantification of costs can be undertaken to create a budget.

There is great value in a collaborative project team approach to creating successful project outcomes. Failing to capitalise on the cooperative opportunities is often to a project's detriment.

The education provider's infrastructure lead should begin by gathering all relevant information associated with the site.

They can draw upon the knowledge and experience of current education campus engineers; they can discuss the project with previous developments' consultants and builders; access and compile existing reports (fire, hazardous materials, building surveys etc.) This will provide a strong foundation to undertake master planning and feasibility studies, ahead of developing the full business case and the preliminary budgets, including for latent site conditions.



Melbourne Conservatorium of Music, Ian Potter Centre, Southbank
Image courtesy of John Wardle Architects

Moving forward: Successful project implementation

Following the Masterplan and Feasibility Study – the key ingredients of a successful project implementation phase includes:

- Structured approach to cost planning and risk management: Dynamic change cost capture with milestone cost plans at Schematic Design, Design Development and Pretender gates;
- Understanding volatility and fluctuations in the tender market and making appropriate allowances for cost escalation;
- Eliminate project risks ahead of appointing a contractor;
- Adopting a procurement method appropriate to the scale and complexity of the project;
- Appropriate list of Tenderers: Match project types with capacity and interest of the tenderers;
- Make the tender document package attractive with an appropriate tender period;
- Minimise the number of Tender Options;
- Standardise Contract Conditions with balanced risk allocation;
- Include a Bill of Quantities to assist the Builder's and Subcontractor's estimators with pricing;
- Minimise Tender Addenda;
- Manage surprises with a strategy for Value Management items in the event of a budget overrun;
- Negotiate with preferred tenderers when competitive tension is strong.

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Alternative solutions through partnerships

New partnerships and collaborations with commercial investors are becoming common to construct new facilities.

Current examples include the University of Melbourne's new innovation precinct, Melbourne Connect, being built by Lendlease who will construct and manage the precinct for 42 years, and Western Sydney University's (WSU) partnership with Charter Hall to construct 1 Parramatta Square housing its law and business schools. WSU and Charter Hall have now teamed up with University of NSW to deliver another Parramatta Campus, the Engineering Innovation Hub which will house engineering, architecture and entrepreneurship students as well as researchers, business and industry through commercial tenancies, managed by the developer. This model removes some of the traditional risk of developing new infrastructure by transference to the commercial operator to build and manage the facility.

Indigenous Engagement

Universities are at the forefront of Indigenous acknowledgement and engagement and there is significant public momentum for true reconciliation. New building projects offer the opportunity to sensitively consider engagement and place-making for First Nations Australians, to meet contemporary expectations from Indigenous communities and other students on campus. It is important to engage early to ensure it is integrated into the design, not just a token add-on later.

Summary

With an ever-increasing demand for Australian based education, as well as evolving service delivery models, continued investment in the built environment appears a 'no-brainer'. However, a scarcity of suitable and affordable greenbelt land, means education providers will increasingly have to consider developments on brownfield sites, the re-purposing of existing facilities, uptake of land on rezoned former industrial sites such as Fishermans Bend, or enter into innovative partnerships with commercial companies to construct and manage new facilities avoiding the capital risk.

Through the successful delivery of many brownfield redevelopments for tertiary providers, we have identified the following key issues to be addressed:

- surround yourself with the right professional expertise, experienced and outcome focused;
- allocate adequate time and funds to complete a rigorous business case process; undertake due diligence and de-risk as far as possible prior to commitment;
- fully appraise latent site conditions for all sites, whether on existing or new campus locations;
- develop clear governance and communication protocols to ensure decisions are made with due process and with the right information to hand;

Tertiary education providers are leading the way in the sustainable development of brownfield campus sites that benefit the student cohort, academic staff and the community as a whole.

References

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Below and next page:
Chancellery Building, Monash University
Designed by ARM Architecture



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About Slattery & Kaizen

Slattery is a property and construction advisory firm specialising in quantity surveying, cost management and early phase project advisory, with an outstanding history spanning more than 40 years.

We work hand-in-hand with governments, institutions and organisations as well as planners, developers, architects and design teams on a broad range of property and construction projects.

A commitment to excellence and innovation, and an ability to become an integral part of the project team has earned Slattery the trust and respect of clients and project teams alike. Slattery adds value by taking control and ownership of the cost management process from the outset. We understand the importance to drive innovation and productivity.

Slattery's Kaizen Papers focus on sharing knowledge, ideas and pertinent cost information related to our industry. Kaizen is the Japanese word for improvement, and a business philosophy that strives for continuous improvement in process. We produce papers across the sectors we work with, which are shared with our clients and made available on our website for all to view.

We invite you to explore these further at www.slattery.com.au/thought-leadership

Tertiary Education

At Slattery, we believe in creating education precincts that facilitate positive learning outcomes for students and staff. While aesthetic and functional design is vitally important, it is also essential that projects deliver value for money through quality construction and cost management.

Slattery is passionate about education projects, with a total portfolio now comprising over 400 education projects delivered since 2000. In fact it has been a core focus of our business for more than 40 years. We have worked with 24 of the 43 registered universities in Australia, including 6 of the Group of 8 and fully understand the challenges facing tertiary institutions. Our expertise is unrivalled and ensures our tertiary clients receive accurate, reliable and tested data.

For more information about Slattery and our Education team, please contact National Education Sector Lead, Tom Dean at tom.dean@slattery.com.au